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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Tatsuo NAKAJIMA et al.

Serial No: 10/780,609

Group Art Unit: 3682

Confirmation No. 3180

Filed: February 19, 2004

Examiner: William C. Joyce

For: MAGNETIC ENCODER AND WHEEL SUPPORT BEARING ASSEMBLY USING THE
SAME

COMMUNICATION TO THE EXAMINER

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

The Examiner did not consider Japanese language Preliminary Notice of Rejection listed on AE of Attachment 1(g) filed with the IDS filed July 24, 2007. Further, the Examiner did not consider the Chinese language Office Action on AD of Attachment 1(g) filed with the IDS filed August 31, 2007.

Submitted herewith are English language versions of both the Japanese language Preliminary Notice of Rejection and the Chinese language Office Action that were recently made available. It is respectfully requested that these documents be placed in the application file.

Respectfully submitted,

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Date: April 11, 2008

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English partial translation of Japanese language Preliminary Notice of Rejection

Dispatch Date: April 24, 2007

Preliminary Notice of Rejection

Patent Application Number: Japanese Patent Application 2006-237462

Drafting Date: April 13, 2007

[Ground 1]

The invention as set forth in the claims specified below is deemed to have been obvious to those skilled in the art from the following published document(s) and/or the electric communication networks made available to the public in general prior to the effective filing date of this application and is, therefore, deemed unpatentable under Sec. 2 of Art. 29 of the Patent Law.

REMARKS

Claims 1 to 3 are deemed to have been obvious in view of Refs. 1 and 2:

Ref. 1 discloses a magnetic encoder including a multi-pole magnet in the form of a plastics magnet having a plurality of magnetic poles alternating in a direction circumferentially thereof, and a core metal for supporting this multi-pole magnet, and it would have been obvious to those skilled in the art to select a particular quantity of the powdery magnetic material for the multi-pole magnet out of an extremely broad range, that is, the range of 30 to 80 vol.%. Also, from the description appearing in Ref. 2, which reads, "In the present invention, for the magnetic paint, the amount of the Ba ferrite magnetic powder is preferably chosen to be within the range of 35 to 65 vol.%, the remainder being a binder resin." (lines 3 to 5 in the top right column on page 3) and also from the description appearing in the right bottom column on page 3 of Ref. 2, it would have been obvious to those skilled in the art to select the quantity of the powdery magnetic material for the multi-pole magnet within the range of 30 to 80 vol.%.

The applicant will be duly notified in the event that any ground of rejection be subsequently found.

References Cited:

- Ref. 1: JP Laid-open Patent Publication No. 2002-228675
Ref. 2: JP Laid-open Patent Publication No. H04-113222

English translation of Chinese language Office Action

First Notice of Rejection

Application No. 200410004437.9

The subject application relates to a magnetic encoder and a wheel support bearing assembly equipped with the magnetic encoder. Through the examination, the following Examination Result is rendered.

1. Claims 1 to 11 lacks the inventive step.

Whereas Claim 1 calls for a magnetic encoder, the cited reference 1 (US5302893A) discloses a magnetic encoder comprising a recording media 12 (corresponding to a multi-pole magnet in the subject application) having a plurality of magnetic poles alternating in a direction circumferentially thereof, a substrate 11 for supporting the recording media 12 and having a core, in which a magnetic material for the recording media contains a powder of barium-ferrite (that is, magnetic powder) within the range of 35 to 65 vol.% (See lines 33 to 44 in first column, lines 55 to 60 in third column of the specification and Fig. 7A.). Because this percent by volume is encompassed within the range of 20 to 90 vol.%, a feature of Claim 1 distinct from the cited reference 1 lies in the use of a metallic material for the substrate. However, it is a well known technique in the field of the invention and has also been well known to those skilled in the art to make the substrate of a metallic material in order to impart a high support strength to the substrate, and, accordingly, Claim 1 lacks either a surprising substantial feature or a meritorious inventive step, failing to have an inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited reference 1.

Claim 2 calls for an additional technical feature in which the amount of the powdery magnetic material is within the range of 30 to 80 vol.%. Since the cited reference 1 discloses the content of the barium-ferrite powder (that is, magnetic powder), which is 35 to 65 vol.%, falling within the above described range and, thus, discloses the above described additional technical feature, Claim 2 lacks the inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited reference 1, where Claim 1 referred to in Claim 2 lacks the inventive step.

Claim 3 calls for an additional technical feature in which the powdery magnetic material is a powder of ferrite. It is pointed out that the powder of barium-ferrite for the powdery magnetic material is a sort of the ferrite powder and, therefore, the cited reference 1 discloses the above described additional technical feature. In view of this, where Claim 1 referred to in Claim 3 lacks

the inventive step, Claim 3 lacks the inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited reference 1.

Claim 4 calls for an additional technical feature in which the powdery magnetic material is a wet powder of anisotropic ferrite core. Since a manufacturing technique associated with the wet anisotropy is a customarily utilized manufacturing method of making a ferrite magnet for the purpose of improvement in anisotropy and elimination of the use of a bonding agent, it is deemed to have been obvious to those skilled in the art to use the powdery magnetic material in the form of a pulverized wet powder of a ferrite core. Accordingly, where Claim 3 referred to in Claim 4 lacks the inventive step, Claim 4 lacks the inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited reference 1.

Claims 5 and 6 call for respective additional technical features which the powdery magnetic material is a samarium or neodymium compound. The powdery samarium and neodymium compounds are a powdery magnetic material having a known strong magnetic force and, therefore, it has been obvious to those skilled in the art to use them in the multi-pole magnet so that the latter can exert a strong magnetic force. In view of this, where Claim 1 referred to in Claims 5 and 6 lacks the inventive step, Claims 5 and 6 lack the inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited reference 1.

Claim 7 calls for an additional technical feature in which the multi-pole magnet is a sintered element made of a powdery mixture of the powdery magnetic and non-magnetic metallic materials. The cited reference 2 (JP S63-115008A) discloses a sintered element made of a powdery mixture of a powdery metal (that is, powdery non-magnetic metallic material) such as, for example, aluminum or tin and a powdery magnetic material and, thus, discloses the above described technical feature and, at the same time, the function thereof is identical with that in the subject application in that the multi-pole magnet is imparted with a high hardness and a high frictional resistance. In view of this, it is deemed to have been obvious to those skilled in the art to apply the teachings of the cited reference 2 to the cited reference 1 to secure the technical feature claimed in Claim 7. Hence, where Claim 1 referred to in Claim 7 lacks the inventive step, Claim 7 lacks the inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited references 1 and 2.

Claim 8 calls for an additional technical feature in which the powdery non-magnetic metallic material is a powder of stainless steel. To use the powder of stainless steel for the non-magnetic metallic powder for the purpose of imparting a rustproof to the multi-pole magnet has been obvious to those skilled in the art and, accordingly, where Claim 7 referred to in Claim 8 lacks the inventive step, Claim 8 lacks the inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited references 1 and 2.

Claim 9 calls for an additional technical feature in which the powdery non-magnetic metallic material is a powder of tin. The cited reference 2 discloses the use of a powder of tin for the non-magnetic powdery material and, accordingly, where Claim 7 referred to in Claim 9 lacks the inventive step, Claim 9 lacks the inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited references 1 and 2.

Claim 10 calls for an additional technical feature in which the powdery mixture includes two or more powdery magnetic materials or two or more powdery non-magnetic metallic material. To use two or more powdery magnetic materials or two or more powdery non-magnetic metallic material in the powdery mixture has been obvious to those skilled in the art in order to provide the multi-pole magnet with characteristics of different powdery magnetic material or characteristics of different non-magnetic metallic material. In view of this, where Claim 7 referred to in Claim 10 lacks the inventive step, Claim 10 lacks the inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited references 1 and 2.

Claim 11 calls for an additional technical feature in which the powdery magnetic material includes two or more powdery magnetic materials. To use two or more powdery magnetic materials in the powdery magnetic mixture has been obvious to those skilled in the art in order to provide the multi-pole magnet with characteristics of different powdery magnetic material. In view of this, where Claim 1 referred to in Claim 11 lacks the inventive step, Claim 11 lacks the inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited reference 1.

2. Claims 12 and 13 lack the inventive step.

Claim 12 calls for a wheel support bearing assembly equipped with the magnetic encoder. The cited reference 3 (CN1375407A) discloses a wheel support bearing element (that is, the wheel support bearing assembly) comprising a multi-pole magnetic body 18 (corresponding to the multi-pole magnet in the subject application) having magnetic poles alternating in a direction circumferentially thereof, and a first sealing member 31 for supporting the multi-pole magnet 18 and including a core (See pages 21 to 26 of the specification and Figs. 7A to 8.). Accordingly, a technical feature of Claim 12 distinct from the cited reference 3 lies in that the first sealing member 31 including the core is made of a metallic material and the content of the powdery magnetic material in the multi-pole magnet is within the range of 20 to 90 vol.%. It has been known in the field of the invention and, hence, obvious to those skilled in the art to manufacture the first sealing member 31 with the use of a metallic material in order to impart a high support strength on one hand and, on the other hand, the cited reference 1 (US5302893A) discloses a magnetic encoder of a kind in which a magnetic material for the recording media 12 (corresponding

to the multi-pole magnet in the subject application) contains a powder of barium-ferrite (that is, magnetic powder) within the range of 35 to 65 vol.% (See lines 33 to 44 in first column, lines 55 to 60 in third column of the specification and Fig. 7A.) and, also, a technical feature that the content of the powdery magnetic material in the multi-pole magnet is within the range of 20 to 90 vol.%. In addition, the function of Claim 12 is identical with that in the cited reference 1 in that the multi-pole magnet is imparted with a high magnetic force and a high strength and, hence, those skilled in the art will readily combine such technical feature with the cited reference 3. In view of this, it is deemed to have been obvious to those skilled in the art to combine the known technique with the teachings of the cited reference 1, based on the cited reference 3, to secure the technical feature claimed in Claim 12 and, accordingly, Claim 12 lacks either a surprising substantial feature or a meritorious inventive step, failing to have an inventive step, as defined under Sec. 3 of Art. 22 of the Patent Law, over the cited references 1 and 3.

Claim 13 depends from Claim 12. The cited reference 3 comprises an outer member 1 (corresponding to the outer member in the subject application) having an inner peripheral surface formed with a plurality of rows of raceway surfaces; an inner member 2 (corresponding to the inner member in the subject application) having raceway surfaces defined therein in alignment with the raceway surfaces in the outer member 1; rows of rolling elements 3 (corresponding to the rows of the rolling elements in the subject application) intervening between those raceway surfaces for rotatably supporting a wheel (that is, the wheel support bearing member supports a wheel rotatably relative to a vehicle body structure); a first sealing member 31 (corresponding to the first sealing plate in the subject application) of an L-shaped cross-section and a second sealing member 32 (corresponding to the second sealing plate in the subject application) of an L-shaped cross-section, and a sealing member 11 (corresponding to the sealing unit in the subject application) for sealing an annular space delimited between the outer member 1 and the inner member 2, in which the first sealing member 31 is mounted on the inner member 2 (the inner member 2 is a rotatable body and corresponds to the rotatable member which is either the outer member or the inner member in the subject application), and the second sealing member 32 is held in face-to-face relation with the first sealing member and mounted on the outer member 1 (the outer member 1 is a stationary body and corresponds to the stationary member which is either the inner member or the outer member in the subject application) and in which the second sealing member 32 includes a side lip slidably engageable with an upright portion of the first sealing member 31 and a radial lip slidably engageable with a cylindrical portion thereof and a multi-pole magnet 18 (corresponding to the multi-pole magnet in the subject application) mounted on the upright portion of the first sealing member 31. Accordingly, all of the additional technical features of

Claim 13, except for the feature that the first sealing plate defines the core metal of the magnetic encoder, are disclosed in the cited reference 3. However, as discussed in connection with Claim 12, to make the first sealing member 31 (in such case, the first sealing member 31 defines a core metal of the magnetic encoder.) using a metallic material in order to impart a high support strength to the first sealing member 31 has been well known in the field of the invention and obvious to those skilled in the art. Accordingly, where Claim 12 referred to in Claim 13 lacks the inventive step, Claim 13 lacks the inventive step, as defined in Sec. 3 of Art. 22 of the Patent Law, over the cited references 1 and 3.

As reasoned above, not only do all of the claims in the subject application lack the inventive step as defined under Sec. 3 of Art. 22 of the Patent Law, but the specification of the subject application contains no substantive content that can be patented. Even though the applicant makes any attempt to restrict the claims based on the disclosure made in the specification of the subject application, it is pointed out that no patenting on the subject application can be expected. Hence, the subject application shall be rejected absent any persuasive response the applicant may file within the period allowed for response.